

REMARKS

Based on this amendment, claims 5-19 are pending, with claims 5, 18, and 19 being independent claims.

The specification has been amended to address the informalities raised in the action.

Regarding the two sets of claims identified at page 3 of the action, we note that the PCT application was originally filed with the set of six claims, and that set of six claims was replaced with a new set of four claims during the PCT proceedings. Accordingly, the case entered the US National Phase with the new set of four claims. Those claims have since been canceled and replaced by new claims 5-19 as set forth above.

New claims 5-10 generally correspond to the set of six claims originally filed with the PCT application. New claim 11 recites "wherein a main surface of the semiconductor body has a doping level greater than 10^{19}cm^{-3} ," and is supported by the graph in Fig. 2 which shows the doping level increasing to greater than 10^{19}cm^{-3} at the main surface. New claims 12-19 correspond to various permutations of features in the prior claims.

The Drawings have been amended as requested by the Action.

The objections to claims 1-4 have been addressed in new claims 5-19.

With regard to the Section 112 rejection, and as described above, we note that the claim limitation "wherein a main surface of the semiconductor body has a doping level greater than 10^{19}cm^{-3} ," is supported by the graph in Fig. 2 which shows the doping level increasing to greater than 10^{19}cm^{-3} at the main surface.

With regard to the Section 102 rejection over U.S. Patent No. 5,396,103 ("Oiu"), all of the claims require a "matrix having a sequence of layers" with "each layer of the matrix compris[ing] several sub-monolayer islands" and the "sub-monolayer islands [being] separated from the one another and embedded in the matrix." We submit that such sub-monolayer islands are simply missing from Oiu.

In contrast, Oiu generally describes alternating layers ZnTe and ZnSe, such as shown in Figure 12, and goes on to state that "[t]he ZnTe layers can be complete or fractional monolayers"

(col. 13, lines 60-63). The passage is ambiguous at best, but whatever a “fractional monolayer” is, it is clearly different from the claimed sub-monolayer islands.

First, even if one were to assume, for the sake of argument only, that the fractional monolayer corresponds to an “island,” there is only a single such island per layer, not “several sub-monolayer islands” per layer, as required by the claim (emphasis added). Second, there is no indication in Oiu that the fractional monolayer of ZnTe is “embedded in [a] matrix,” as required by the claim. To the contrary, for example, the fractional ZnTe monolayer may extend to one or more edges of the multilayer stack, in which case it could not be “embedded” in any set of ZnSe layers.

The distinctions are important because the inventors of the present application have recognized that by embedding sub-monolayer islands in a matrix they can reduce mechanical tension caused by lattice constant difference between the constituent materials, thereby improving the reliability of a semiconductor device based on the structure. Oiu neither discloses such embedded islands, nor recognizes their advantages.

Accordingly, we submit that the claims as currently amended distinguish Oiu and we ask the Examiner to withdraw the rejection, and allow the application.

Applicant : Martin Behringer et al.
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Please apply any charges or credits to deposit account 06-1050, referencing Attorney
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Respectfully submitted,

Date: 5/9/05



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Amendments to the Drawings:

The attached replacement sheet of drawings includes changes to Figs. 1 and 2 and replaces the original sheet including Figs. 1 and 2.

In Fig. 1, the reference numeral 4 has been amended to point into within layer 10 rather than layer 9. In Figs. 1 and 2, the terms "FIGURE 1" and "FIGURE 2" have been moved below each respective drawing. The attached Annotated Sheet Showing changes shows the additions in red.

Attachments following last page of this Amendment:

Replacement Sheet (1 pages)
Annotated Sheet Showing Change(s) (1 pages)

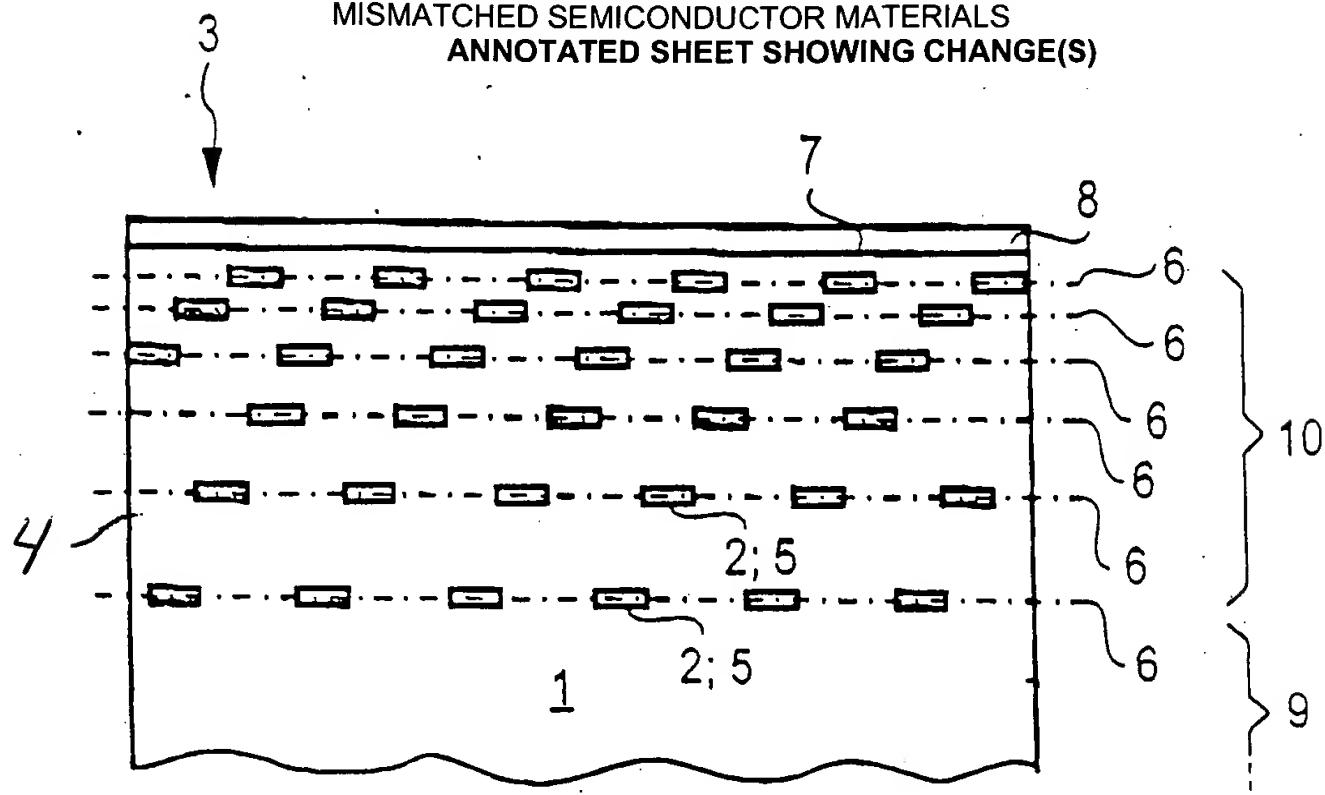


FIGURE 1

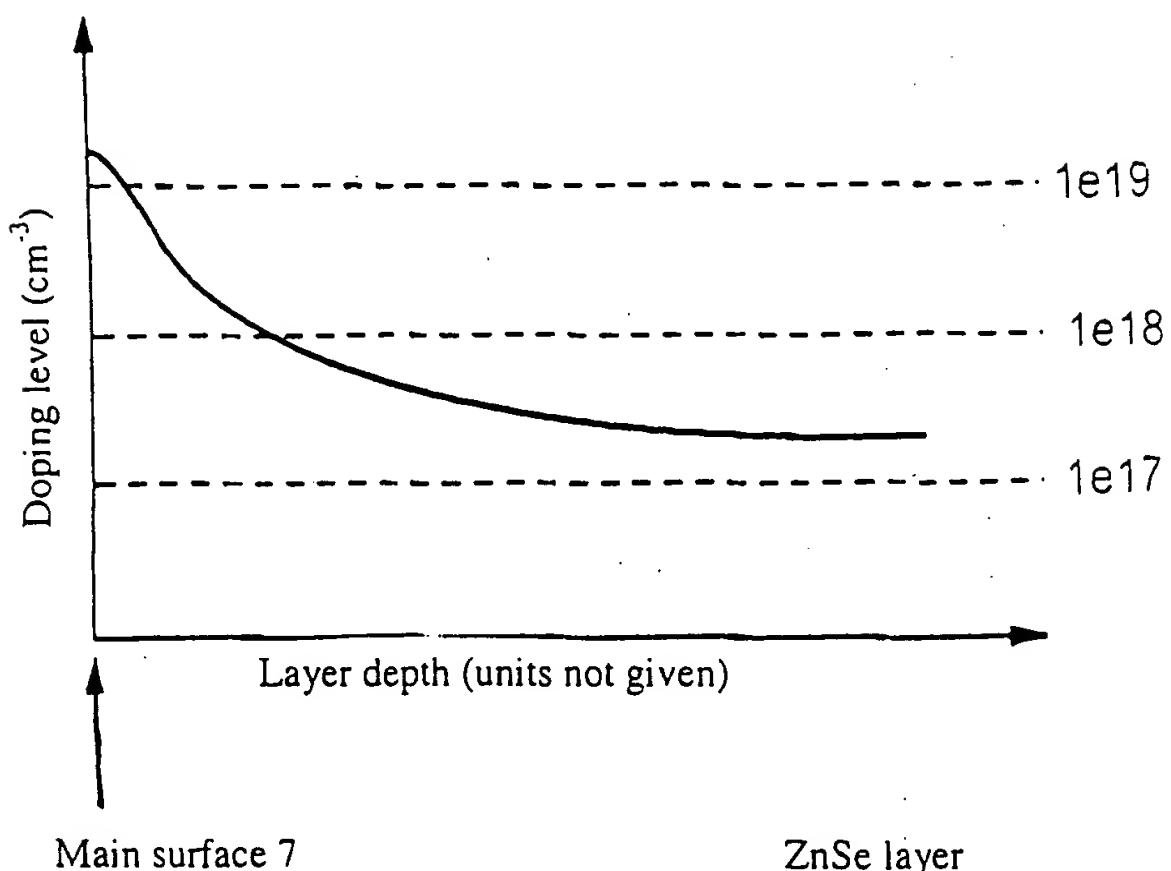


FIGURE 2